



The State of Technology in Catholic Schools

Catholic schools, providers of quality education, are doing their part to make the shift to instructional methods and tools designed to prepare students for success in the Digital Age.



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The State of Technology in Catholic Schools

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This special report provides an update on the state of technology in Catholic schools, based on data provided from the MDR 2005-2006 Annual School Technology Survey of public, private, and Catholic schools in the United States.

The results show that Catholic elementary and secondary schools continue to make steady progress in adopting instructional technology. Increasing numbers of students have access to up-to-date instructional computers, many of which are mobile laptops. High-speed Internet connections and wireless networks are becoming the norm, particularly in secondary schools. Along with the growth in infrastructure, Catholic educators are using technology in increasingly sophisticated ways. Use of distance learning and video streaming is expanding; and schools are more likely

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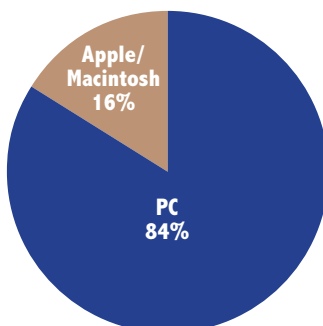
to own technology-based peripherals such as digital cameras, projection devices, and digital whiteboards than in the past. But growth has not been uniform. For example, secondary schools have made greater progress in virtually every area surveyed than their elementary counterparts. Large

schools, both elementary and secondary, are more likely to try new technologies than smaller schools. And so, in addition to identifying gains, this report also points out where digital gaps still exist in Catholic schools, providing insight into which areas might experience the most change in the near future.

Computers in Catholic Schools

PCs are the top choice for instructional computers (84%), with Macintosh computers accounting for just 16% of instructional computers (see Figure 1). Lower prices for PCs and compatibility with less expensive peripherals as well as access to software and Web-based resources designed for the PC environment continue to drive this trend. However, this could change. Apple is taking aggressive steps to regain a greater share of the education market as evidenced in the company's recently announced \$899 configuration of the 17-inch iMac® designed specifically for schools.

Figure 1:
Computers By Brand

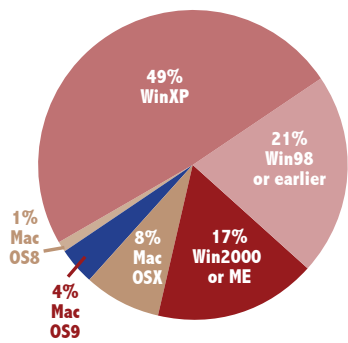


Catholic schools are chipping away at their ratio of students to instructional computers. Six years ago Catholic schools' student-to-instructional-computer ratio was 8:1, while the public school ratio was 6:1. (Levin, Hurst, and Burns, 2000) Today, the national public school student-to-instructional-computer ratio is 3.8:1 (Edwards 2006), and the Annual School Technology Survey shows that **Catholic schools' overall ratio has dropped to 4.5:1**. In elementary schools this ratio is 5:1 and in secondary schools it is 3.5:1.

Source: MDR

In his bestseller *The World Is Flat: A Brief History of the 21st Century*, Thomas Friedman writes that, thanks to advances in technology over the last decade, it turns out that the world is flat after all. New or improved technologies are changing the way people around the globe conduct nearly every facet of their daily lives, from the way they run their businesses to how they spend their leisure time, making it possible for anyone who has access to an Internet-connected device to become a full-fledged world citizen. Educators are feeling this impact as well, striving to meet increasing expectations that they will incorporate use of a variety of instructional technologies into their teaching of 21st century skills. And Catholic schools, providers of quality education throughout the history of the United States, are doing their part to make the shift to instructional methods and tools designed to prepare students for success in the Digital Age.

Figure 2:
Computers by Operating System Version



Source: MDR

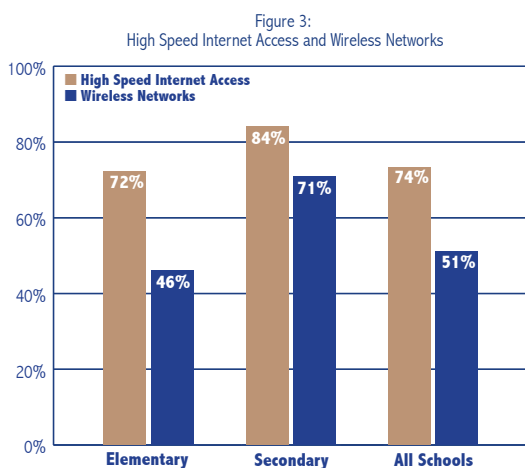
schools using Apple computers, the majority are running Mac OSX. Figure 2 shows the overall breakdown of operating systems in use by percentage.

High-Speed Internet Connections and Wireless Networks

America's Digital Schools 2006: A Five Year Forecast (Greaves and Hayes 2006) predicts that the next five years will see rapid growth in teacher and student use of Internet-connected wireless mobile computing devices. However, to make this happen, schools must have an infrastructure that can support these devices. This includes high-speed Internet connections (at least T1, T3, or cable modem Internet connections) and wireless networks. Catholic schools are making significant inroads in both high-speed connections and installation of wireless networks.

High-speed Internet Connections

In 1998-1999, nearly two-thirds of all Catholic schools using the Internet were dependent upon dial-up connections and the ratio of students to Internet-connected instructional computers was 19:1. (Parsad, Skinner, and Farris 2001). This ratio has decreased dramatically, thanks at least in part to the E-rate program. When the E-rate program was initiated, Catholic schools were more likely to apply for the discounts than other private schools, and

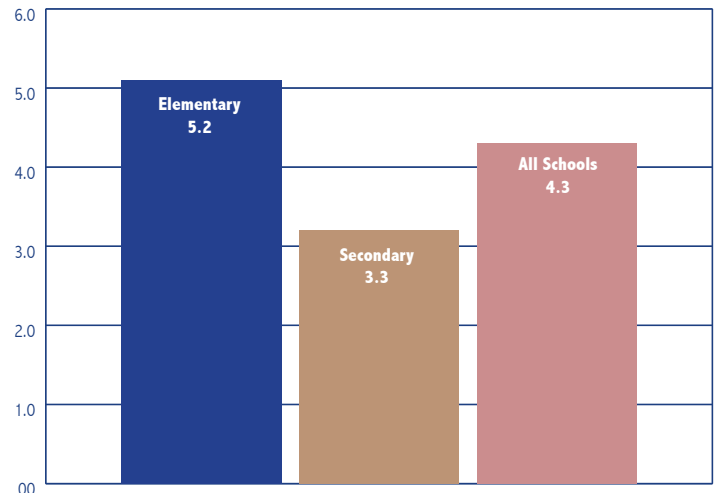


Source: MDR

40.6% made applications in 2005-2006. **Today 74% of all Catholic schools have high-speed Internet connections** (see Figure 3). Current ratios of students to computers

with high-speed Internet connections in elementary schools, secondary schools, and overall are shown in Figure 4. Large secondary schools with enrollments over 1,000 have the highest percentage of high-speed connections (94%).

Figure 4:
High Speed Internet Computer Intensity:
Ratio of Students to Internet-Connected Computers



Source: MDR

Wireless Networks

Coupled with high-speed Internet connections, wireless networks free teachers and students to use mobile computing devices whenever and wherever they are needed. In 2002, only 1% of all Catholic schools reported having wireless networks. (Tyre 2002) **Today 51% of all Catholic schools have wireless networks.** Not surprisingly, these networks are most likely to be found in secondary schools (71%), but 46% of elementary schools have also gone wireless (see Figure 3).

Large secondary schools with enrollments over 1,000 have the highest percentage of wireless networks (82%). However, 62% of elementary schools with student enrollments of 500-999 also have wireless networks.





Sixty percent of Catholic schools provide laptops for instructional purposes.

Mobile Computing

Now that growing numbers of Catholic schools have the appropriate infrastructure, mobility and flexibility are increasingly important factors when educators select computers. Laptops make it easier to provide computing access to teachers and students in a variety of configurations, and laptop carts make mobility practical.

Laptop Computers

Catholic schools are embracing mobile computing. In 1999, the average number of laptops found in Catholic schools for instructional and administrative uses combined was just six per site. (Tyre 2002) **Today, the overall average number of laptops for instructional purposes alone is 29 per site.** As shown in Figure 5, 60% of all Catholic schools now provide laptop computers for instructional purposes. Secondary schools are making the greatest headway, where 72% have laptops on campus. The average number of laptops on secondary sites is 73, offering a student to laptop ratio of 8.5:1 (see Figure 6). Large secondary schools with enrollments over 1,000 have the highest percentage of laptops (79%).

Elementary schools are making gains as well. **Fifty-eight percent of all elementary schools have laptops on site.** The average number of laptops on elementary sites is 13, offering a student to laptop ratio of 25:1 (see Figure 6). Elementary schools with student enrollments between 500 and 999 are most likely to have laptops on campus (67%).

Mobile Laptop Carts

Despite the increased numbers of laptop computers, a much smaller proportion of Catholic schools are using mobile laptop carts (see Figure 5); just 22% overall currently report purchasing carts. Secondary schools are most likely to own mobile laptop carts (31%). Only 20% of elementary schools have mobile laptop carts at present, and most are found in those schools with student enrollments between 500 and 999. However, it's reasonable to expect that as schools expand their inventories of laptops, the need for laptop carts for mobility, security, and storage will grow as well.

Figure 5:
Schools with Laptops and Mobile Laptop Carts

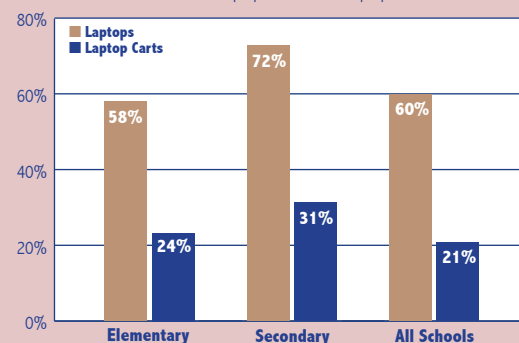
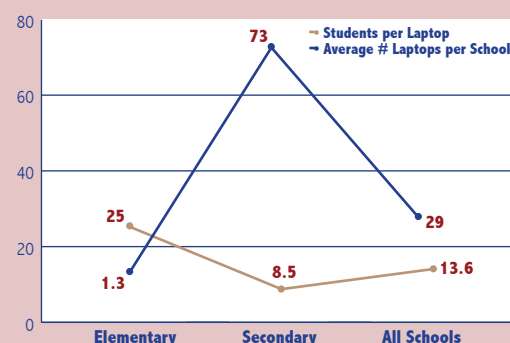


Figure 6: Laptop Intensities



Source: MDR

Beyond Computers, High-Speed Connections, and Wireless Networks

Access to more sophisticated infrastructure and hardware is just the beginning. The important information is how schools are using this equipment to support work and facilitate learning. MDR uses several indicators to monitor how schools are expanding their use of technology to harness its potential in classrooms. This report looks at three: online purchases, video streaming, and distance learning.

Online Purchases

Making the decision to move from a paper-based purchasing system to one that is online is often indicative of a school's general attitude toward technology use. Catholic schools are eagerly embracing this method of purchasing.

Seventy-nine percent of all Catholic schools buy products, such as instructional materials and supplies, via the Internet.

These purchases are more prevalent at secondary schools (90%) than at elementary schools (77%). Enrollment is definitely a factor; secondary schools with smaller student enrollments are most likely to make online purchases (see Figure 7). This makes sense as smaller schools are more likely to have limited staffing and make use of an automated purchasing system to reduce workload.



The high school graduation rate for Catholic schools is 99.1%, and 97% of the graduates go on to attend a post-secondary institution.

Catholic Schools: Overview for 2005-06

There are 7,589 Catholic schools in the United States: 6,386 elementary schools and 1,203 secondary schools. The total student enrollment for 2005-2006 was 2,363,220, with elementary/middle school students accounting for 73% of the student population and high school students making up 27%.

Thirty-eight new schools opened and 223 either consolidated or closed (excluding New Orleans) during 2005-2006. These openings and closures (or consolidations) reflect a trend that

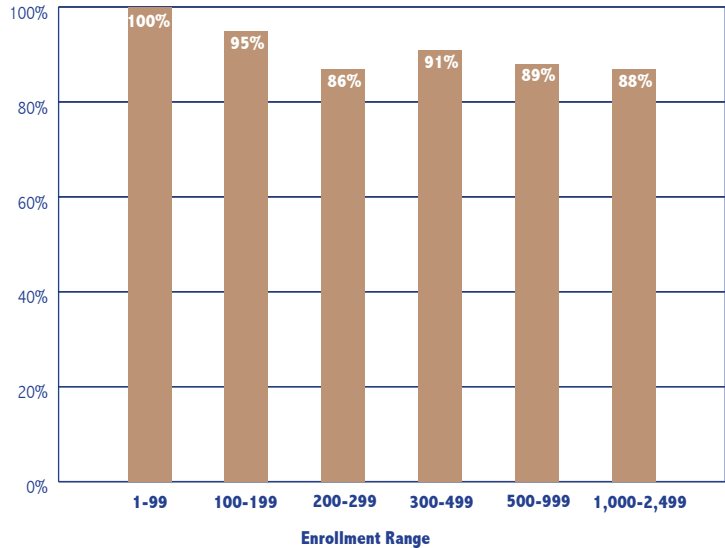
has been observed over the last six years. During this time enrollment in urban and inner-city Catholic schools has declined. The *United States* NCEA report attributes this downturn to economic trends and demographic changes in large cities, pointing out that suburban schools have experienced growth during this same time period.

Outreach is an important aspect of Catholic education. For example, minority and non-Catholic student populations have increased significantly since 1970, when just 11% of all students were

members of a minority and only 3% were non-Catholic. Today (excluding New Orleans) the minority student enrollment is 27% and non-Catholic enrollment is 13.5%. Hispanic students represent the greatest minority (12%), followed by Black (7.2%) and Asian (3.9%) students. And, despite dwindling numbers of students in urban and inner-city areas, the church continues its commitment to provide education to the children of the poor. A considerable number, 43% of all Catholic schools, are still located in these areas. In addition, approximately 87% of elementary schools and 97% of high schools provide some form of tuition assistance. All this is accomplished while maintaining an average student/teacher ratio of 15:1.

The results show that these outreach efforts pay off. Overall, students perform very well on academic assessments. The high school graduation rate for Catholic schools is 99.1%, and 97% of the graduates go on to attend a post-secondary institution. One of the most telling indicators is the fact that 32% of all Catholic schools presently maintain waiting lists for prospective students.

Figure 7:
% of Secondary Schools Purchasing Online by Enrollment



Video Streaming

Video streaming, the ability to play a video immediately while it is downloading from the Internet, requires a fast connection and fast computer. Use of Internet-based video also necessitates changes in teacher planning and instructional design. According to the U.S. Census Bureau, 16% of all Catholic schools used video streaming in classrooms in 2004-2005. At that time, 22% of secondary schools and 15% of elementary schools used video streaming. In 2005-2006, the overall percentage has increased to 30%. See Figure 8.

There is a significant increase in use of video streaming in both secondary schools (41%) and elementary schools (27%). Enrollment is definitely a factor in whether or not schools offer video streaming. Secondary schools with more than 200 students and elementary schools with more than 300 students have a higher penetration of video streaming use than the average.

Distance Learning

Distance learning is extremely valuable in settings where students are widely dispersed or when a qualified instructor is not available locally. The U.S. Census Bureau reports that just 5% of all Catholic schools offered distance learning opportunities to their students in 2003-2004. At that time, 16% of secondary schools and 3% of elementary schools participated in some form of distance learning. In the last two years, the overall percentage has increased to 7%, and the percentage for elementary schools has increased to 4%. Secondary schools are making greater strides in this area; today 23% of these schools are making distance learning opportunities available to their students. Figure 9 illustrates this growth. Not surprisingly, rural secondary schools have a higher penetration rate (50%) for distance learning, as do small secondary schools with enrollments of 1-99 (67%) and 100-199 (53%).

Figure 8:
% of Schools with Video Streaming

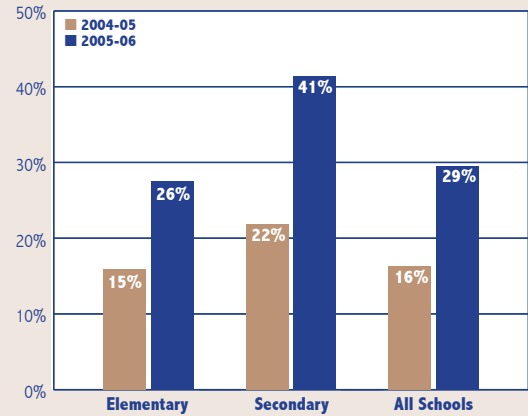
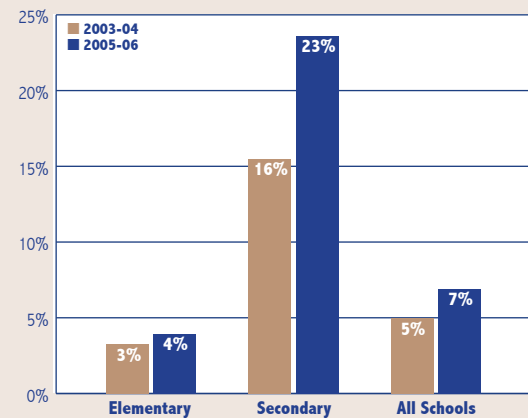


Figure 9:
% of Schools with Distance Learning for Students



Source: MDR

There is an 88% increase in use of video streaming in Catholic schools in the last year.

Adopting Additional Technologies

Just as the presence of online purchasing, video streaming, and distance learning opportunities are indicators of more sophisticated technology use, so is adoption of additional technologies. MDR tracks several of these technologies in the Annual School Technology Survey. The technologies included here are: projection systems, digital photography, and digital whiteboards.

Projection Systems

This easy-to-use technology peripheral is now found in 61% of all Catholic schools; however, few schools (9%) are placing projection systems in many or every classroom. In most instances (43%), projection devices are found in less than one-quarter of classrooms, indicating that schools are purchasing and sharing projection systems in multiple classrooms. This may be due to the fact that while purchase prices are dropping, the cost of replacement bulbs is still quite high, making the systems too expensive for most schools to maintain in large numbers. Figure 10 shows the current distribution of projection systems in all Catholic schools.

Digital Photography

Digital photography is very popular with Catholic educators, used in 77% of all schools. It's easy to master the basics of this relatively inexpensive technology which lends itself well to:

- use across content areas
 - encouraging opportunities for hands-on technology-supported activities
 - challenging students to exercise critical thinking and problem solving skills
- Secondary schools report more frequent use (85%), but elementary schools aren't far behind (75%). See Figure 11. This technology is especially entrenched in urban (89%) and rural (88%) secondary schools.

Digital Whiteboards

Digital whiteboards have been available to schools for many years, but recent improvements in the technology are causing a renewed interest among educators. In fact, *America's Digital Schools 2006: A Five Year Forecast* projects that education sales of digital whiteboards will double between 2006 and 2008, and then double again by 2011. Currently 32% of all Catholic schools have digital whiteboards. Only 27% of elementary schools have at least one digital whiteboard on campus, however 54% of secondary schools have this technology (see Figure 11). Urban secondary schools are leading the charge with 61% reporting ownership of at least one digital whiteboard. Large elementary schools (enrollment over 500 students) are more likely than their smaller counterparts to own at least one digital whiteboard.

Technology Gains Continue

U.S. Catholic schools continue to make steady gains in the level of instructional technology available to students and teachers. Secondary schools, particularly large urban and suburban schools, are most likely to have made greater gains, as are bigger elementary schools. However, progress is being made across the boards, demonstrating that all Catholic schools continue to strive to provide the best possible instructional experiences for their students.

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Figure 10:
Placement of Projection Systems
by Percentage of Classrooms
(Overall, 61%)

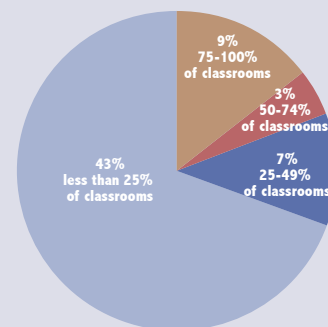
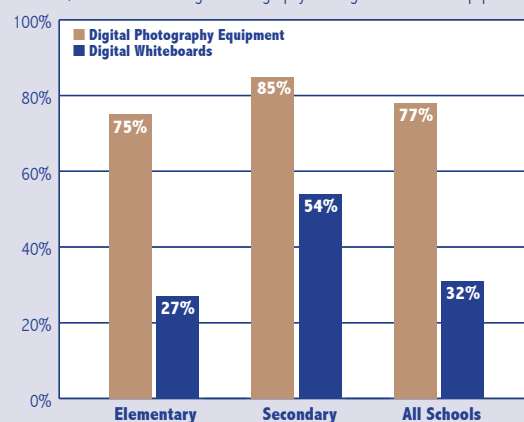


Figure 11:
% of Schools with Digital Photography and Digital Whiteboard Equipment



References

Edwards, V. B., ed. *Technology Counts 2006: The Information Edge*. Bethesda, MD: Editorial Projects in Education Inc., 2006. [Online] Available <http://www.edweek.org/ew/toc/2006/05/04/index.html>.

Greaves, T. and J. Hayes. *America's Digital Schools 2006: A Five Year Forecast*. The Hayes Connection and The Greaves Group, 2006. [Online] Available <http://www.ads2006.org/main/index.php>.

Levin, D., D. Hurst, and S. Burns. *Computer and Internet Access in Private Schools and Classrooms: 1995 and 1998*. Washington, DC: National Center for Education Statistics, 2000. [Online] Available <http://nces.ed.gov/pubs2000/2000044.pdf>.

McDonald, D. *United States Catholic Elementary and Secondary Schools: 2005-2006*. Washington, DC: National Catholic Educational Association, 2006. [Online] Available <http://www.ncea.org/news/AnnualDataReport.asp>.

National Catholic Educational Association, Frequently Asked Questions [Online] Available <http://www.ncea.org/FAQ/index.asp>.

Parsad, B., R. Skinner, and E. Farris. *Advanced Telecommunications in U.S. Private Schools: 1998-99*. Washington, DC: National Center for Education Statistics (2001). [Online] Available http://nces.ed.gov/programs/quarterly/vol_3/3_1/q4_5.asp.

Renewing Our Commitment to Catholic Elementary and Secondary Schools in the Third Millennium. United States Conference of Catholic Bishops, Inc., 2005. [Online] Available <http://www.usccb.org/bishops/schools.pdf>.

Tyre, T. *The State of Technology in Catholic Schools: 2000*. Dayton, OH: *Today's Catholic Teacher*, 2000.

Tyre, T. *The State of Technology in Catholic Schools: 2002*. Dayton, OH: *Today's Catholic Teacher*, 2002.

U.S. Census Bureau. *No. 243. Computers for Student Instruction in Elementary and Secondary Schools: 2003-2004*. [Online] Available http://www.census.gov/Press-Release/www/releases/archives/educ_table243.pdf.

U.S. Census Bureau. *Table 246. Computers for Student Instruction in Elementary and Secondary Schools: 2004-2005*. [Online] Available <http://66.102.7.104/search?q=cache:0P2t2KmlVUIJ:www.census.gov/compendia/statab/tables/06s0246.xls+statistics+video+streaming+in+catholic+schools&hl=en&gl=us&ct=clnk&cd=2>.



About the Data

The data presented in this report are based on the results of MDR's annual technology survey. During the 2005-06 school year, the survey reached 7,675 Catholic schools in the United States using e-mail, Internet and telephone survey methods. The survey produced a healthy 18% response rate.

All preK-12 Catholic schools in the country are encouraged to participate in the survey each year. In 2005-2006, 1,371 responses were received, representing a cross section of Catholic schools from around the country. This response rate allows the results to be viewed with a high level of confidence (99% with a margin of error of +/- 3.1%). The Annual School Technology Survey provides aggregated results (e.g., the ratio of students to instructional computers), but also enables readers to look at trends within disaggregated results using variables such as school type (elementary/secondary), metro status (urban, suburban, rural), and enrollment.

About MDR

MDR has been surveying schools and districts to learn about the technology they use for both administrative and instructional purposes for over 20 years.

MDR, a D&B Company, is headquartered in Shelton, Connecticut, with regional offices in Chicago and San Francisco. MDR is the leading provider of information and services on the education market. Its databases include 5 million educators at more than 260,000 institutions – from preschool through college, including day care centers and public libraries. In addition to publishing an annual report on technology in U.S. K-12 public schools, MDR also publishes a variety of research reports, including *The Enrollment Comparison Report*, *The College Technology Review*, which contains findings from MDR's annual college technology survey, and, most recently, *The Impact of No Child Left Behind: Educational Leaders Speak Out*.

For questions or requests contact MDR at www.schooldata.com or 800-333-8802.

About Today's Catholic Teacher

Today's Catholic Teacher is the premier magazine for the Catholic education community, reaching every Catholic school in the country. Published six times per year, it is delivered to 50,000 teachers, principals and administrators in Catholic schools. *Today's Catholic Teacher* provides its readers with the information they need in their daily work including reproducible activity pages, professional development tools, technology use for education, parent communication help, and more. *Today's Catholic Teacher* also conducts several awards programs each year including Catholic School for Tomorrow Innovations in Education awards and Great Ideas award. *Today's Catholic Teacher* magazine is published by Peter Li Education Group, headquartered in Dayton, Ohio.

For questions or requests contact *Today's Catholic Teacher* at www.catholicteacher.com or 800-523-4625.

About the Author

Former Catholic school teacher Susan Brooks-Young spent 23 years as a teacher and administrator. She now works as a professional consultant and author. Her most recent book, *Critical Technology Issues for School Leaders* (2006) was published by Corwin Press. She can be reached at SJBrooks@aol.com.